

Performance-Based Planning and Programming in the SWRMPO Region

The Statewide and Nonmetropolitan Transportation Planning and Metropolitan Transportation Planning, published on May 27, 2016, (FHWA 23 CFR Parts 450 and 771 and FTA 49 CFR Part 613) implements changes to the planning process, including requiring a performance-based approach to planning and requires that the Connecticut Department of Transportation (CTDOT), the South Western Region Metropolitan Planning Organization (SWRMPO), and the operators of public transportation use performance measures to document expectations for future performance. Performance management and performance-based planning and programming increases the accountability and transparency of the Federal-aid Program and offers a framework to support improved investment decision-making by focusing on performance outcomes for national transportation goals. FHWA and FTA established national performance measures in areas such as safety, infrastructure condition, congestion, system reliability, emissions, freight movement, transit safety and transit state of good repair.

As part of this new performance-based approach, recipients of Federal-aid highway program funds and Federal transit funds are required to link the investment priorities contained in the Statewide Transportation Improvement Program (STIP) and Transportation Improvement Program (TIP) to achievement of performance targets.

The MAP-21 performance-related provisions also require States, MPOs, and operators of public transportation to develop other performance-based plans and processes or add new requirements on existing performance-based plans and processes. These performance-based plans and processes include the Congestion Mitigation and Air Quality Improvement (CMAQ) Program performance plan, the Strategic Highway Safety Plan, the public transportation agency safety plan, the highway and transit asset management plans, and the State Freight Plan.

A STIP and TIP shall include, to the maximum extent practicable, a discussion of the anticipated effect of the STIP and TIP toward achieving the performance targets identified by the State in the statewide transportation plan or other State performance-based plan(s), linking investment priorities to those performance targets.

All current targets set for the performance measures listed below can be accessed at the CTDOT website at www.ct.gov/dot/performanceasures.

Highway Safety

Highway Safety is determined by the interaction between drivers, their behavior and the highway infrastructure. The five (5) performance measures for Highway Safety include: (1) the number of fatalities; (2) the rate of fatalities; (3) the number of serious injuries; (4) the rate of serious injuries; and, (5) the number of non-motorized fatalities and serious injuries. The STIP and the TIP will

program projects to meet the targets set by the CTDOT and agreed upon by the SWRMPO, by including appropriate Highway Safety Improvement Program (HSIP) safety projects including:

1. Programmatic highway safety improvements: Projects or programs that are conducted regularly throughout the state such as signing and pavement marking programs.
2. Programmatic driver safety activities: Projects or programs that are conducted regularly on an ongoing basis. These include Highway Safety behavioral programs such as Impaired Driving, Occupant Protection, Distracted Driving, Speeding, Motorcycle Safety, and Teen Driving grants for State and Municipal Police Departments using National Highway Traffic Safety Administration (NHTSA) funds.
3. Location-specific highway safety projects: This includes roadway safety improvements selected to correct known safety problems at locations with a high frequency or severity of crashes.

Transit

The Transit Asset Management (TAM) rule requires that recipients and sub recipients of Federal Transit Administration (FTA) funds set annual performance targets for federally established State of Good Repair (SGR) measures. Performance targets will be set for one or more asset classes for asset categories Rolling Stock, Equipment, Facilities and Guideway Infrastructure. CTDOT identified asset classes for its transit service providers specific to each of the four assets categories in the three public transportation modes of rail, bus and ferry.

The percentage of assets beyond the useful life benchmark is the performance measure set for both categories, Rolling Stock and Equipment. For facilities category, the performance measure is based on a 5 point condition rating scale derived from FTA's Transit Economic Requirement Model (TERM). The performance measure is the percentage of facilities rated below 3 on the 5-point scale, with a 3 rated as SGR. The category of facilities has two classes which are passenger and parking stations and administrative and maintenance buildings. Under FTA reporting requirements, the guideway Infrastructure category is specific only to rail. The performance measure set by FTA is the % of guideway with a performance restriction which is interpreted as slow zones.

Under the FAST Act and MAP-21, "transit providers are required to submit an annual narrative report to the NTD that provides a description of any change in the condition of its transit system from the previous year and describes the progress made during the year to meet the targets previously set for that year." Beginning in October 2018, performance targets will be reported annually to the National Transit Database by CTDOT for the transit system. A narrative report describing strategies for setting targets and progress on the targets will accompany targets starting 2019.

The STIP and TIP will program projects to meet the targets set by the CTDOT and agreed upon by the SWRMPO by utilizing the list of capital prioritized projects, based on projected asset conditions, included in the CTDOT TAM and Transit Group Plans to be completed by October 1,

2018 to be shared with the MPOs. This list of projects will be updated every four years along with the Plans. These prioritized projects will be developed with the aid of CTDOT's analytical decision support tool, Transit Asset Prioritization Tool, better known as TAPT.

Pavement and Bridge Condition

The four performance measures for Pavement condition include the percent of the Interstate system in Good and Poor condition and the percent of the non-Interstate National Highway System (NHS) in Good and Poor condition. The two performance measures for Bridge condition include the percent of NHS Bridges in Good and Poor condition.

The STIP and the TIP will program projects to meet the targets set by the CTDOT and agreed upon by the SWRMPO using the Department's Pavement Management System and the Bridge Management System which uses a systematic look at conditions to develop optimal strategies. These strategies are included in the CTDOT Transportation Asset Management Plan (TAMP).

Transportation Asset Management Plan. TAMP acts as a focal point for information about the assets, their management strategies, long-term expenditure forecasts, and business management processes. CTDOT is required to develop a risk-based TAMP for the National Highway System (NHS) to improve or preserve the condition of the assets and the performance of the system (23 U.S.C. 119(e) (1), MAP-21 § 1106). MAP 21 defines asset management as a strategic and systematic process of operating, maintaining, and improving physical assets, with a focus on engineering and economic analysis based upon quality information, to identify a structured sequence of maintenance, preservation, repair, rehabilitation, and replacement actions that will achieve and sustain a desired state of good repair over the lifecycle of the assets at minimum practicable cost. (23 U.S.C. 101(a) (2), MAP-21 § 1103).

Pavement and Bridge State of Good Repair needs are identified, quantified, and prioritized through the TAMP process. Projects to address SOGR repair needs are selected from the TAMP for inclusion in the STIP and TIPs.

System Reliability

Highway travel time reliability is closely related to congestion and is greatly influenced by the complex interactions of traffic demand, physical capacity, and roadway "events."¹ Travel-time reliability is a significant aspect of transportation system performance.

The national system reliability performance measures assess the impact of the CTDOT's various programs on the mobility of the transportation highway system users. Operational-improvement, capacity-expansion, and to a certain degree highway road and bridge condition improvement projects, impact both congestion and system reliability. Demand-management initiatives also impact system reliability. According to the same SHRP-2 study, "travel-time reliability is a new

¹ SHRP 2 Project Lo3, "Analytical Procedures for Determining the Impacts of Reliability Mitigation Strategies," September 2011, p. ES-7, on the World Wide Web at <http://onlinepubs.trb.org/onlinepubs/shrp2/L35RFP/Lo3Report.pdf> (accessed May 14, 2018)

concept to which much of the transportation profession has had only limited exposure.”² Although there is not a specific system reliability program, reducing congestion and improving system reliability are key factors considered when CTDOT makes decisions about investments in the transportation system.

The CTDOT and the SWRMPO will program projects in the STIP and TIP to meet the targets set by the CTDOT and agreed upon by the SWRMPO by considering system reliability in the projects that are selected. Over time, and as quantifiable impacts begin to be observed and measured, they can be expected to become part of the project selection process in a formal way.

Freight Movement

This measure considers factors that are unique to the trucking industry. The unusual characteristics of truck freight include:

- use of the system during all hours of the day
- high percentage of travel in off-peak periods
- need for shippers and receivers to factor in more ‘buffer’ time into their logistics planning for on-time arrivals. [23 CFR 490.607].

Freight movement will be assessed by the Truck Travel Time Reliability (TTTR) index. For the first reporting period, Connecticut will be using the analysis conducted as part of the truck freight bottleneck analysis that was done as part of the freight plan, and which was approved by FHWA. Going forward, Connecticut, along with other State DOTs and MPOs have the data they need in FHWA’s National Performance Management Research Data Set (NPMRDS), which includes truck travel times for the full Interstate System. Therefore, for this first year of reporting, the CTDOT and SWRMPO must use the trend and truck bottleneck analysis done for the recently completed Statewide Freight Plan.

Air Quality

US DOT requires that states and MPO’s assess the impact of their transportation systems on air quality and specifically the impacts vehicle exhaust emissions. Their performance measure for air quality is based on an assessment of projects selected for funding under the Congestion Mitigation and Air Quality Improvement (CMAQ) program.

The CMAQ program’s purpose is to fund transportation projects or programs that contribute to the attainment or maintenance of National Ambient Air Quality Standards (NAAQS) in those specific areas. The STIP and the TIP will program projects to meet the targets set by the CTDOT and agreed upon by the SWRMPO by selecting appropriate CMAQ eligible projects including: congestion reduction and traffic flow improvements; ridesharing; transit improvements; travel demand management; and, bicycle and pedestrian facilities.

² Ibid, p. 1-1.